6-1-2002

Personal Pesticide Protection - Selection and Care

Cooperative Extension Service
South Dakota State University

Follow this and additional works at: http://openprairie.sdstate.edu/extension_extra

Recommended Citation
http://openprairie.sdstate.edu/extension_extra/320

This Other is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Extension Extra by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.
PERSONAL PESTICIDE PROTECTION

Selection & Care

Pesticides can enter the body through inhalation or accidental ingestion. However, the most common and least understood means of poisoning is through skin absorption. Whether liquid spray or granular, all forms of pesticide can soil your clothes, putting them in close contact with your skin where they may be absorbed. Granules may not stick to fabrics or leave evidence of soiling, but cotton fabrics may hold their pesticide residues.

Select the Right Clothing
Manufacturers’ precautionary statements on the pesticide label indicate the type of protective covering that must be worn to reduce exposure to pesticides. Under the Worker Protection Standard (WPS), the specific items listed will vary with the toxicity of the chemical. Regardless of toxicity, regular working clothing should be worn at all times around most chemicals. This includes underclothing, a long-sleeved shirt, long pants, and socks. Most labels also specify chemically resistant gloves and boots. Other labels may specify use of coveralls, chemically resistant aprons, goggles, face shields, and respirators.

Clothing materials vary in their ability to resist penetration and permeation of pesticides. Cotton woven materials, such as heavy denim, may offer adequate protection from granular and dry formulations in limited exposure situations. For liquid sprays, chemically resistant materials or those with a chemically resistant finish offer more protection and can be worn over regular work clothing, especially for mixing and loading tasks. This publication outlines care for regular work clothing of cotton or cottonblend materials, such as denim jeans worn by most pesticide applicators.

Launder Clothing Carefully
Traces of pesticide remain on work clothing, even after washing. Careful laundering techniques, however, can reduce pesticide residue to extremely small levels, measured in parts per million or billion. Whether or not trace residues in clothing represent a health hazard to humans is unknown—pesticides remain biologically active in the cloth and can suppress enzymes and kill fruit flies or cockroaches.

Wear Clean Clothes Daily
If pesticide gets on clothes that are already soiled or dirty, the pesticide will be more difficult to remove than from clean clothes. Discard all clothing heavily soiled with full-strength or concentrated liquid pesticides.

Step-by-step Laundry Methods
Follow these laundering practices for all cotton and cotton-blend clothing worn around pesticides. These methods will lessen your exposure to pesticides and leave the least amount of residue in clothing.

- Wear chemically resistant gloves to handle pesticide-soiled clothes.
- Keep pesticide-soiled clothing separate from other family clothes before and during laundering to avoid transfer of residues.
- Wash pesticide-soiled clothing daily, and as soon as possible after wear to maximize removal of chemicals.
- Pre-rinse or pre-soak in a separate tub, on the line with a garden hose, or in the pre-rinse cycle of your washer; discard water used for rinsing or soaking.
- Fill tub again with hot or warm water for washing. Use cold water for the rinse cycle.
- Use a heavy-duty detergent, preferably phosphate-based or liquid.
- Do not overcrowd the washer; wash only a few items at a time.
- Use the highest water level setting, even for small loads.
- Use the longest wash time cycle—at least 10 to 12 minutes—not a shorter knit cycle. If your washer has a sudsaver feature, never use it for clothing soiled with pesticides.
If possible, hang cotton and cotton-blend clothes on the line to dry in the sun. Sun helps degrade some pesticides.

Before laundering family clothes, run the washer through a complete cycle without clothes to rinse pesticide residue out of your machine. Use hot water and detergent. Repeated or multiple washing before drying helps remove more of the residue from work clothing. After washing, check wet clothes for visible staining, an unusual odor, or color differences and repeat the washing-before clothing is dried. If a second washing does not remove stains or odor, discard the clothes.

Laundering Additives
Ammonia: Ammonia has not been shown to help remove residues. Never use bleach and ammonia in the same wash load; toxic fumes result.

Chlorine bleach: A three-hour soak in chlorine bleach solution may help remove chloropyrifos, but fabrics will be weakened and color may fade. This has not been shown to be effective with other pesticides.


Pretreatment sprays: Solvent-based sprays assist removal of oil-based pesticide formulations in cottons.

Salt: Salt helps remove paraquat, but not other pesticides. Add 1 cup of table salt to your wash load with regular detergent.

Starch: Starch used on cotton or cotton-blend fabrics may help prevent pesticides from reaching the skin.

Starch seems to trap pesticide so that both the starch and pesticide wash away in the next laundering. Starch must be reapplied after each wash. Field study using starch on cotton coveralls is being done in South Dakota.

Other Safety Measures
Soil and water repellent finishes such as Scotchgard and Zepel help cotton fabrics resist penetration of pesticide sprays, but also make fabrics more difficult to launder. If you use these repellents, renew them after every second or third wash.

Keep Alert for New Safety Tips
Researchers continue to study protective clothing materials and laundering procedures. As new information becomes available, suggested laundering methods may change.

Always consult the pesticide label. Manufacturers offer many suggestions, but you must choose the protective clothing, equipment, and laundry methods required in your situation.

For your information — This publication is based on these and other research articles:


Written by Janis Stone, textiles and clothing; Wendy Wintersteen, entomologist; Laura Miller, editor; design by Valerie King, Iowa State University Extension.

Adapted for use in South Dakota by Linda Manikowske, Extension clothing and textiles specialist, and Jim Wilson, Extension pesticide education coordinator, 1/95.

This publication and others can be accessed electronically from the SDSU College of Agriculture & Biological Sciences publications page, which is at http://agbiopubs.sdstate.edu/articles/ExEx8124.pdf

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings. SDSU is an Affirmative Action/Equal Opportunity Employer (Male/Female) and offers all benefits, services, and educational and employment opportunities without regard for ancestry, age, race, citizenship, color, creed, religion, gender, disability, national origin, sexual preference, or Vietnam Era veteran status.